

Research on genetic and immunological factors influencing allergic reactions to all types of nuts

Maria Zofia Lisiecka

Department of Allergology, National Medical Institute of the Ministry of the Interior and Administration, Warsaw 02-507, Poland

Email: mariazofialisiecka@gmail.com

Received : 13.11.24

Revised : 05.12.24

Accepted : 07.12.24

DOI: 10.53552/ijmfmap.10.2.2024.83-92

License: CC BY-NC 4.0

Copyright: © The Author(s)

ABSTRACT

The study aims to investigate the genetic and immunological factors influencing the development of allergic reactions to various types of nuts, emphasising key genetic markers and immune mechanisms responsible for hypersensitivity. Data from 500 patients with confirmed nut allergies and 200 people from a control group without allergies was collected and analysed. The genetic analysis included deoxyribonucleic acid sequencing to identify single nucleotide polymorphisms in genes associated with the immune response, such as HLA, IL-4, IL-13 and TSLP. An immunological analysis was also carried out, including measuring the levels of specific IgE antibodies to various types of nuts and assessing the activity of immune cells. The results of the study showed that the presence of certain single-nucleotide polymorphisms in the HLA and IL-4 genes was associated with an increased risk of developing nut allergy. In addition, patients with these genetic markers had higher levels of specific IgE and more pronounced immune reactions to nuts, confirming the importance of these genes in the pathogenesis of allergic reactions. These data can help develop more accurate diagnostic methods and personalised approaches to treating nut allergies based on the genetic and immunological profile of patients.

Keywords: Anaphylaxis, antibodies, diagnosis and treatment, IgE antibodies, polymorphism, sequencing.